

Solid Waste: 1987 Recommendations 2007 Results

By Bruce Gledhill, Director
Mecklenburg County Solid Waste

Overview

1987: The County has a solid waste management plan but it is incomplete, failing to address key problems such as demolition waste, illegal dumping or the disposal of infectious waste. Additionally, the municipal/commercial waste disposal capacity is critically low. Generally, the systems and facilities required to implement a comprehensive plan are unavailable.

2007: Today, there is not only a comprehensive County solid waste management plan that addresses residential, commercial and construction and demolition waste, but also the infrastructure to support its implementation. The problems of widespread illegal dumping and infectious waste disposal have been essentially eliminated, not through local planning, but rather through legislation and regulation at the federal and state levels.

Quick Stats

1987:

- Municipal commercial waste disposal capacity was 3 years.
- Municipal commercial waste generated (tons) = 635,000
- Municipal commercial waste recycled (tons) = 4,500 or 1% of total waste stream
- County hazardous waste generation (tons) = estimated at over 8,000

2007:

- Residential/commercial waste disposal capacity in excess of 25 years
- Residential/commercial waste generated (tons) = 1,538,000 (FY 2007)
- Residential waste recycled (tons) = 47,000 or more than 11% of residential waste stream.
- County hazardous waste generation (tons) = 12,500 (2005)



Waste Disposal

1987: Municipal/commercial waste disposal capacity was critically low. The only remaining solid waste landfill in Mecklenburg County, the County's Harrisburg Road landfill, was estimated to only have three years life remaining, and that long only if half of the County solid waste were directed to the BFI Landfill in Cabarrus County.



2007: The County was able to secure a new permitted municipal solid waste disposal facility, the US 521 Landfill (Foxhole) in 1999, only after 12 years of litigation and permitting related activities. Today, even with the doubling of population and annual waste disposal since the 1987 SOER, the newly available disposal capacity and the County's own Foxhole Landfill coupled with the continued use of the expanded Allied Waste (BFI) Speedway Landfill in Cabarrus County results in more than 25 years of disposal capacity available for the County's residential solid waste. With these landfills, and the several permitted waste transfer stations serving the commercial waste generators in Mecklenburg County providing waste transport to more distant regional landfills, similar commercial disposal capacity exists.

Incineration of municipal solid waste needs to be done with regard for the public health and environmental protection.

1987: With the critical shortage of waste disposal capacity and inadequate handling of infectious waste, waste incineration was seen as the preferred, environmentally sound solution for waste disposal.

2007: The construction of the first, a small municipal waste incinerator in the University City area, was already underway at the writing of the 1987 SOER and a second larger facility was planned in the Arrowood Road vicinity. The University City Resource Recovery Facility commenced operation in 1989 but was decommissioned only five years later as the costs of compliance with environmental regulations increased and the County's ability to direct waste to the facility was impeded by change in Federal law. These same changes caused the plans for the proposed Arrowood facility to be abandoned. With the implementation of new, stricter environmental standards for waste landfills in the 1990's, landfills were no longer seen as an environmentally inferior waste disposal method. Today, in Mecklenburg County, municipal waste incineration is no longer considered a cost effective waste management approach.

Infectious Waste Handling

1987: The proper disposal of infectious or medical waste was considered a major issue in 1987. Inadequate regulation, poor accounting of disposal practices and numerous small on-site incinerators raised the level of concern.

2007: In the 20 years from 1987 to today, these concerns have been all but eliminated. Beginning in 1990, a series of state and federal laws were enacted that significantly tightened the controls on the generation, storage, handling, transportation and disposal of medical wastes. Today, most medical waste is handled by specialized third-party contractors that provide proper containers, secure transportation, and proper disposal of these wastes in off-site facilities. While safe disposal of infectious waste continues to be a concern, the appropriate regulations and

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infrastructure are in place and proper handling of these materials is no longer a problem.

There is a lack of collection, transportation and disposal options readily available and accessible to all County residents for the management of all solid waste.

1987: Although there was already a “Mecklenburg County Solid Waste Management Plan,” waste collection systems varied by municipality and in some cases were nonexistent. Those systems that did exist were not integrated in their collection, transportation and disposal approaches.

2007: Today there is not only a comprehensive solid waste management plan but also a comprehensive and integrated collection, transportation and disposal system. Through interlocal agreements with the municipalities the County provides the necessary management options for recyclables, yard waste, and solid waste once collected.

Chronic Illegal Dumping

1987: Chronic illegal dumping of all types of solid waste takes place on public and private property.

2007: The urbanization of the County over the last 20 years has limited the number of locations where illegal dumping could go unnoticed, limiting the opportunity. Similarly, adequate access to permitted disposal sites is now readily available through the County recycling centers and public and private landfills and transfer stations located in and nearby to Mecklenburg County. While there are still isolated instances of illegal waste dumping in Mecklenburg County, they are not the systemic problem reported in 1987.

Poor Management of Construction and Demolition Wastes

1987: The mismanagement of construction and demolition waste was significantly related to the illegal dumping previously described, including the “proliferation of small demolition and construction waste disposal sites.”

2007: Significant strides have been made in addressing this issue over the past 20 years, but in part the issue remains. In that time the regulatory approach to these facilities has markedly changed. There are two landfills permitted to receive C&D waste in Mecklenburg County, one being the



County's own Foxhole Landfill. Their capacity, along with the numerous similar sites just outside of Mecklenburg County provides adequate C&D facilities for the foreseeable future.

Inadequate Control of Hazardous Waste

1987: Large industries in the County generate equally large quantities of hazardous waste (see Quick Stats) and nearby disposal capacity is inadequate. There are no proper disposal options for residentially generated household hazardous wastes.

2007: Through the implementation by industry of waste minimization and pollution prevention systems, the quantity of hazardous waste generated has been reduced. In 2005, large industry in Mecklenburg County generated less than 2 percent of the hazardous waste of 20 years ago. For household generators, the County has opened four permanent drop-off sites for household hazardous wastes.

Inadequate Management of Industrial and Special Wastes

1987: There was inadequate disposal capacity for industrial wastes, process sludges and asbestos. That capacity which did exist had inadequate environmental controls.

2007: Again waste minimization and recycling has substantially reduced the quantities of these special wastes generated. Also, the implementation of RCRA Subtitle D standards for municipal waste landfills so improved the environmental controls on new landfills that they now can safely handle most of these special wastes.

Explore mandatory recycling programs for specific materials at all local government operations and offices. Coordinate activities of all City and County agencies and departments involved in solid waste management.

1987: No mandatory recycling programs for City or County government operations were developed.

2007: Through the PaperChase program, Mecklenburg County offices recycle paper and commingled container collection has been introduced to some on a pilot basis. Mecklenburg County Solid Waste also has entered into Interlocal Agreements with the Charlotte Mecklenburg School system, Central Piedmont Community College, and Mecklenburg County Alcoholic Beverage Commission to provide recyclable collection at all of the facilities they control.





Solid Waste

Findings & Recommendations 2008

By Bruce Gledhill, PE, Director
Mecklenburg County Solid Waste

Findings

- Over the last year, the total quantity of waste landfilled by Mecklenburg County residents and businesses increased at a rate greater than the population growth. With an FY 2006 disposal rate of 1.89 tons per person, the County is lagging behind in achieving its stated waste reduction goals.
- While the per capita disposal rate increased in all three generation categories (residential, commercial, construction and demolition), the bulk of the growth was in the commercial category. To a great extent this additional waste can be attributed to a single site remediation project underway during the year.
- The quantity of recyclables collected in the residential curbside programs has measurably increased over the past two years. The residential recovery rate has increased from approximately 10 percent to 11 percent recycled of the total residential wastestream collected.
- While still largely untapped in its recycling potential, construction and demolition waste reduction has been closely aligned with the growing "green building" movement and as such is receiving considerable attention locally. In parallel, markets are developing for the recyclable materials from this wastestream.
- There has been little growth in the quantity of hazardous and radioactive wastes generated in Mecklenburg County. There continue to be adequate management systems in place to properly handle the wastes generated.
- Mecklenburg County's recycling and waste management infrastructure continues to be among the most comprehensive in the state. There is ample waste disposal capacity to serve the community's needs for the next 20 years if managed properly. While adequate, some of the public recycling and yard waste management facilities are showing their age and are struggling with the growing customer base.

Recommendations

- Increase participation in residential recycling. While all single family residents and many multi-family residents are provided with recyclable collection, it is estimated that less than half regularly participate in the program. Increased emphasis needs to be placed on motivating residents to recycle through increasing the awareness and benefits of the program and providing more convenient, flexible collection services.
- Expand the recycling by our business community. In spite of widespread compliance with the County's Source Separation Ordinance requiring businesses to recycle, waste generation in the commercial sector continues to increase, spurred in part by a rapidly growing local economy. Recycling participation needs to be expanded to a broader range of businesses with a greater number of materials recycled.
- Foster increased recycling of our construction and demolition (C&D) wastes. Locally, the recycling of C&D wastes is impaired by the low alternative disposal fees, an immature C&D recycling infrastructure, and low priority placed on recycling by the contractors. The County should actively promote the development of both the recycling infrastructure and markets for the recycled materials as well as increase the awareness of the benefits and opportunities provided by C&D recycling.
- Continue to provide the highest level of recycling and waste management services to the citizens of Mecklenburg County. Reinvest in County's public recycling and waste management infrastructure in order to provide a continued high level of service to the community, cost efficiently, while providing maximum protection to the environment.
- In each of the above areas, the County should continue to lead by example, encouraging others to recycle by improving our own internal recycling rates.

Garbage, Recyclables, Yard Waste, Bulky Trash - Where Does It All Go?

*By Bruce Gledhill, PE, Director
Mecklenburg County Solid Waste*

As most Mecklenburg County residents do, on one morning each week you roll out your garbage, place your recycling bin at the curb, neatly arrange, bag or contain your yard waste alongside, and then drive off to work. Lo and behold, you return home at the end of the day and everything has magically disappeared. Well, the magic behind it all has markedly changed over the last 20 years. Then, everything was collected in a single setout, there was no separation of garbage, recyclables and yard waste — everything went into the trash can. Now, three different trucks come down your street on collection day. Have you ever wondered where they all go once they are gone?



Recyclables collected from homes in Mecklenburg County are taken to the County's Metrolina Recycling Center, located off Graham Street in north Charlotte. Over 50,000 tons of residential recyclables were received in 2007. When recyclables are collected at the curb, the driver of the collection truck separates the material into two "streams:" fiber (newspaper, cardboard, junk mail, etc.) and commingled containers (bottles, cans, and other plastic or glass containers). Once these

materials are delivered to the Metrolina Recycling Center they are routed onto a conveyor and separated manually and by machines into the different types of plastic, glass, aluminum, tin, newspaper or cardboard. Here, the recyclables are sorted, baled, and sold as raw materials to be reused in the manufacture of other products.



The separated recyclables are then formed into bales, each weighing nearly a ton, and sold to manufacturers of different products. For example, newspaper is turned into home insulation at the Metrolina Recycling Center, plastic can be made into fleece clothing or carpet, and aluminum can be used to make new aluminum cans. All of the recyclables placed at the curb ultimately end up as new products. (For more information on the types of materials that can be recycled see our Web page www.wipeoutwaste.com.)

Differing from 20 years ago, yard waste such as leaves, grass clippings and brush, are no longer placed in the landfill, being banned from landfills by the State of North Carolina in 1993. Today, residential yard waste is separately collected at curbside, typically hand loaded into the collection truck. This hand loading process makes it important to limit the size of individual pieces so that the yard waste is not too big for the driver to handle. Some municipalities alternatively provide containerized yard waste collection, which also limits the size of the yard waste collected.

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Most of the yard waste collected is then delivered to the County's Compost Central facility located near Charlotte Douglas International Airport. Over 80,000 tons of yard waste were handled there in 2007. At Compost Central the yard waste is ground by large tub grinders into pieces about one inch in size. Once the material is ground, it can be sold as landscaping materials (such as mulch) or be composted, a process in which the material is put into rows or piles and allowed to decompose. The decomposed material becomes a valuable soil additive and can be used in yards or gardens to promote growth of plants and vegetables. Those materials that are not made into landscaping products are turned into boiler fuel — where it replaces fossil fuels in local paper mills.



There was a significant illegal dumping problem 20 years ago and much of what was illegally dumped was bulky waste such as discarded appliances. Today, in most of the municipalities, residents call for a separate bulky waste collection. A special truck, usually with a powered lift-gate, collects the appliance and transports it to the County's Metal & Tire Recovery Facility, located on Rozzelles Ferry Road in west Charlotte. Here the appliance is unloaded and, if it's a refrigerator or air conditioner, a licensed technician safely removes the freon (an ozone contributing chemical) from the unit. Then the unit is crushed and the scrap metals sold as recyclables.

While 20 years ago you probably placed your garbage in a trash can or bag, today you likely place it at the curb in a large roll-out container supplied by the municipality. Now the driver doesn't even leave the collection truck when it stops in front of your house. Instead he/she operates a robot arm that automatically dumps the roll-out container into the truck. Today that residential garbage is then taken to the Charlotte Motor Speedway Landfill in neighboring Cabarrus County. Nearly 400,000 tons of Mecklenburg County residential garbage were landfilled there in 2007. At some point in the future this same residential garbage will be taken to the County's Foxhole Landfill, located on US 521 south of Ballantyne. Operating since 2001, the Foxhole Landfill is currently receiving only construction and demolition waste

Foxhole Landfill





but will ultimately convert to receiving residential waste. Both landfills are state-of-the-art facilities incorporating significant safeguards to prevent negative impacts to the environment. Once landfills are closed they can be utilized for various recreational activities or as nature preserves and walking trails. An example of this is the former Harrisburg Road Landfill which served Mecklenburg County 20 years ago. This landfill has been converted into the Charles T. Myers golf course, operated by County Parks and Recreation.



Recyclables and waste generated by businesses in Mecklenburg County are handled similarly, but separately from residential materials. Recyclables from businesses are generally required to be separated from solid waste by the County's Source Separation Ordinance. Both recyclables and waste are typically set-out in large "Dumpster" containers for collection instead of being placed curbside. Recyclables and waste are collected by private companies retained by the individual businesses, usually with a truck called a front-end loader that lifts the Dumpster over the front of the truck so

the material discharges into the hopper. Once the recyclables are collected they are taken to various facilities owned by private recyclers to be baled and sold as raw materials to be made into other products. Business recyclables primarily consist of office paper and cardboard, which can be reused to make additional paper and cardboard.

Recyclables are also generated from the construction or demolition of buildings, and usually these consist of wood, metal, cardboard, brick or concrete. These materials are also taken to privately owned facilities to be recycled or reused. Concrete and brick can be crushed and reused as a paving material. Wood can be ground into mulch and dyed for landscaping material. Metal and cardboard are recycled into new metal or cardboard.

Similar to residential waste, the business and construction and demolition waste that cannot be recycled is garbage and is disposed in landfills. Garbage from businesses may be taken to the same Charlotte Motor Speedway Landfill as the residential waste or to various other landfills within the region. Landfill capacity, although relatively plentiful today, is a limited resource that should be conserved. It is unlikely that any new landfills will be sited in Mecklenburg County in the future.

Though reusing or recycling waste has the most environmental benefits, the majority of waste in Mecklenburg County is still not recycled, and ends up being buried in a landfill. Over 1.5 million tons of solid waste generated by residents and businesses in Mecklenburg County were disposed in landfills in 2006. The County's goal is to reduce that by 30 percent in the next 10 years.

Solid Waste Findings Comparison 1987 to 2007

By Bruce Gledhill, PE, Director
Mecklenburg County Solid Waste

In regard to Solid Waste, the 1987 State of the Environment Report (SOER) painted a far different picture of the state of solid waste management in Mecklenburg County than is seen today. In 1987 the County's solid waste management system was truly in a state of crisis and the SOER identified a series of "critical solid waste management issues":

- absence of waste disposal capacity
- improper handling of infectious waste
- illegal dumping
- mismanagement of construction and demolition (C&D) waste

The most critical of these issues facing the County in 1987 was the absence of waste disposal capacity for its residents. Two of three solid waste landfills in Mecklenburg County, the County's Holbrooks Road Landfill, and the City of Charlotte's York Road Landfill had closed the preceding year. The only remaining solid waste landfill, the County's Harrisburg Road Landfill, was estimated to only have three years life remaining, and then only if half of the County solid waste were directed to the BFI Landfill in Cabarrus County. The suggested solution to the impending disposal capacity crisis was an integrated solid waste management system combining waste reduction, recycling, incineration with energy recovery, and landfilling.

Over the past 20 years, most of the solid waste system elements designed to address the waste disposal crisis have been implemented and the

crisis abated, although the path to the solution was a circuitous one. Back in 1987, the cornerstone of the proposed waste disposal solution was the construction of two waste incinerators with energy recovery. The construction of the first, a small incinerator in the University City area, was already under way at the writing of the 1987 SOER, and a second larger facility was planned in the Arrowood Road vicinity. The University City Resource Recovery Facility commenced operation in 1989, but was decommissioned only five years later as the costs of compliance with environmental regulations increased and the County's ability to direct waste to the facility was impeded by change in federal law. These same changes caused the plans for the proposed Arrowood facility to be abandoned.

The path to providing long-term landfill capacity has been equally circuitous but with a better outcome. At the time of the 1987 SOER, the County was actively considering three sites for a new County landfill. The leading candidate was a site in the extreme southern part of the County along US Route 521. The property had been purchased by the County in 1984 and the state had determined the property to be a suitable landfill site by 1987. Twelve years of litigation and permitting related activities followed before the County's US 521 Landfill (Foxhole) was issued its final permits in 1999.

Today, even with the doubling of population and annual waste disposal since the 1987 SOER, the newly available disposal capacity and the County's own Foxhole Landfill coupled with the continued use



of the expanded Allied Waste (BFI) Speedway Landfill in Cabarrus County results in more than 25 years of disposal capacity available for the County's residential solid waste. Today's emphasis is on maximizing the returns from the County's waste reduction and recycling programs in order to make the most of this valuable disposal capacity. As stated in the 2006 SOER, "adequate facilities, systems and capacity are available to serve the County's needs for the foreseeable future."

Although not covered by Mecklenburg County's planning efforts in 1987, the proper disposal of infectious or medical waste was considered a major issue at the time. Inadequate regulation, poor accounting of disposal practices and numerous small on-site incinerators raised the level of concern. In the 20 years from 1987 to today, these concerns have been all but eliminated. Beginning in 1990, a series of state and federal laws were enacted that significantly tightened the controls on the generation, storage, handling, transportation and disposal of medical wastes. Today, most medical waste is handled by specialized third-party contractors that provide proper containers, secure transportation, and proper disposal of these wastes in off-site facilities. One large medical waste incinerator currently operates in Mecklenburg County, but much of the medical waste is transported out-of-county to autoclave or steam sterilization facilities. After sterilization, the residual is then disposed in separate containers and placed into landfills. While safe disposal of infectious waste continues to be a concern, the appropriate regulations and infrastructure are in place and proper handling of these materials is no longer a problem.

The illegal dumping problem described in 1987 has also abated in the following 20 years due to a number of factors. Paramount among these factors has been the changing character of the community itself. The urbanization of the County over the last 20 years has limited the number of locations where illegal dumping could go unnoticed, limiting the

opportunity. This same urbanization means that most residents of the County now live in incorporated municipalities that provide regular curbside collection of solid waste, limiting the need to do it yourself. Similarly, adequate access to permitted disposal sites is now readily available through the County recycling centers and public and private landfills and transfer stations located in and nearby to Mecklenburg County. While there are still isolated instances of illegal waste dumping in Mecklenburg County, they are not the systemic problem reported in 1987.

The final critical solid waste issue facing Mecklenburg County in 1987 was the mismanagement of construction and demolition waste. Much of that issue related to the illegal dumping previously described, including the "proliferation of small demolition and construction waste disposal sites." Significant strides have been made in addressing this issue over the past 20 years, but in part the issue remains. In that time the regulatory approach to these facilities has markedly changed. The entire classification of Demolition has been eliminated under the State Solid Waste Rules and replaced with two new classifications: Land Clearing and Inert Debris (LCID) landfills and Construction and Demolition waste (C&D) landfills. In both cases the new environmental requirements and their enforcement are more stringent. Of the former, there are still 38 permitted LCID landfills in Mecklenburg County, generally low volume sites that have been around for years. New LCID sites are unlikely and the number will decline over time. There are two landfills permitted to receive C&D waste in Mecklenburg County, one being the County's own Foxhole Landfill. Their capacity, along with the numerous similar sites just outside of Mecklenburg County provides adequate C&D facilities for the foreseeable future. While the number of sites may still be too great, the demolition wastes are now properly managed.

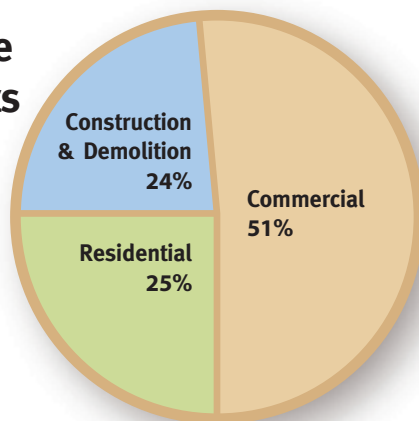


How Much and What Types of Waste Are Generated In the County?

By Joe Hack, Senior Project Manager
Mecklenburg County Solid Waste

During fiscal year 2007, which ended on June 30, 2007, the citizens of Mecklenburg County disposed an average of 10.192 pounds of waste per person per day. This equates to a total of 1,538,377 tons of waste disposed for the year. As large as this number seems, the per capita disposal rate represents a two-percent reduction in waste disposed when compared to the preceding year. To better understand the nature of the sources generating this waste, the County divides the total waste stream into three components; residential, commercial, construction and demolition (C&D). Commercial waste is the largest component consisting of 51 percent of the total waste stream, while C&D is 25 percent, and residential is 24 percent. These numbers only represent waste that is disposed and do not include the waste that is diverted at the source or recycled.

Solid Waste Components



Waste that is generated by households, both single-family and multi-family, is referred to as residential waste. There was over 373,299 tons of residential waste generated in Mecklenburg County during FY 2007. This is about 24 percent of the County's total waste stream. It is estimated that each individual in the County generates about 2.5 pounds per day of residential waste. For the typical household this amount equates to about one ton per year. These statistics reflect only that waste that is actually disposed and do not include waste that is recycled through curbside collection and drop-off programs.

Commercial waste is waste that is generated by businesses. It may come from manufacturers, office buildings, restaurants or the neighborhood grocery store. These businesses in Mecklenburg County generate over 787,958 tons of waste per year, by far the largest component of the total. According to the United States Environmental Protection Agency (EPA) and studies done here in North Carolina, about half of this waste stream is comprised of cardboard and paper. See chart on page 134. Because commercial waste is the largest portion of the County's waste stream and because a large portion of this waste stream is easily recyclable, Mecklenburg County adopted an ordinance in 2001 requiring applicable businesses to separate cardboard and paper from their other wastes. For more information about this ordinance and compliance assistance, please see our Web page, www.wipeoutwaste.com, or call 704-432-3200.

Construction & Demolition (C&D) waste includes waste that is generated from commercial and residential construction and demolition activities. C&D activities generated over 377,120 tons of waste or about 25 percent of the total waste stream in FY 2007. A local study suggests that wood accounts for about 34 percent of this waste stream with materials such as gypsum wallboard, masonry and roofing materials also being major constituents. Efforts are underway to reduce C&D waste disposal through education of builders in alternative building techniques and separation of the recyclable components at the source.

A great deal of waste is generated within Mecklenburg County, but not all of this waste is generated by County residents. Every day, people enter this County to work, shop and play, and each of these activities generate waste. Even with the wastes generated by non-residents, the County's per capita disposal rate has decreased over the past several years. Since fiscal year 1999 we have realized an 8-percent reduction in the waste disposed per citizen of Mecklenburg County. Efforts as outlined in the County's ten-year, Solid Waste Management Plan (2006 - 2016) will continue to reduce the amount of waste disposed.

Solid Waste Disposal Rate

Fiscal Year	lbs/person/day
1999	10.74
2000	10.96
2001	9.7
2002	9.8
2003	9.53
2004	9.36
2005	9.16
2006	10.38
2007	10.19

Commercial Waste Composition

Material Categories			Material Categories			Material Categories		
Organic Materials	Yard Waste Grass & Leaves	2.4%	Other Waste	Textiles	1.5%	Paper	Newsprint (ONP)	2.6%
	Food Waste	10.5%		Carpet	1.8%		High Grade Office	3.6%
	Wood Pallets	2.6%		Computer Equipment Peripherals	0.5%		Magazines Catalogs	1.3%
	Treated Wood	3.7%		Electric & Electronic Products	0.9%		Uncoated OCC recyclable	9.0%
	Untreated Wood	6.5%		Rubber	1.0%		Uncoated OCC nonrecyclable	0.5%
	Diapers	0.8%		Construction & Demolition Debris	4.0%		Coated OCC	0.1%
	Other Organic Material	4.2%		Household Bulky Items	1.5%		Boxboard	1.0%
	TOTAL ORGANIC MATERIALS	30.8%		Miscellaneous	4.6%		Mixed Paper recyclable	5.0%
				TOTAL OTHER WASTE	15.8%		Mixed Paper nonrecyclable	7.2%
						Paper Plastic Metals Glass	TOTAL PAPER	30.3%
							TOTAL PLASTIC	12.8%
							TOTAL METALS	7.5%
							TOTAL GLASS	2.7%

Newspaper, Junk Mail, Cans, Bottles, Leaves, Scrap Tires, Concrete, Brick and Block: Let's Recycle More and Throw Away Less!

By Laurette Hall, Waste Reduction Program Manager
Mecklenburg County Solid Waste

Is it true that if I place my newspaper in my curbside recycling bin in the morning, it may be turned into an insulation product by the time I get home from work? Yes, the possibilities exist in 2008, but not 20 years ago. We have come a long way in waste reduction and recycling, but we still have a great deal more we can do. In 1987, the State of the Environment Report stated that "not enough emphasis is being placed on meeting recycling goals and otherwise minimizing the amount of waste generated." Twenty years later, waste reduction, reuse and recycling has received greater attention and has accomplished greater results.

The 1987 State of the Environment Report acknowledged the significance of planning for effective and efficient municipal solid waste programs. The Solid Waste Management Plan was and remains the vehicle through which goals for the management of solid waste are established and programmatic approaches to reaching those goals is described.

In 1987, it was believed that less than one percent of waste was being recycled, but goals were established to increase recycling to 30 percent by 2006.

Well in 1989, the North Carolina Solid Waste Management Act required local governments to develop comprehensive solid waste management plans that anticipate and plan for the needs of the community over ten-year periods of time. Mecklenburg

County's plan, *The Mecklenburg County Solid Waste Management 10-Year Plan*, serves as a guiding document for waste reduction, identifying strategies and accompanying programs needed to reach reduction goals. This document covers the planning years of 2006 through 2016. The plan no longer establishes recycling goals for the community, but tracks the amount of waste that is not going into landfills on a per capita basis.

The current plan establishes a 33 percent per capita reduction goal by the Fiscal Year 2012/13 for the commercial waste stream, an 11 percent per capita reduction goal for the residential waste stream, and a 33 percent per capita reduction goal for the construction and demolition waste stream. These reduction goals are measured from the baseline year of FY 1998/99. This plan is for unincorporated Mecklenburg County, the City of Charlotte, and towns of Huntersville, Davidson, Cornelius, Mint Hill and Pineville.

The community has implemented many programs to increase the recovery of materials for reduction, recycling and composting, and decrease



our dependency on landfills. Our community is demonstrating signs of greater awareness in requesting “green” disposal options for home and business purposes. Although the amount of business recycling is not tracked in Mecklenburg County, it is believed to be much higher than the one percent reported 20 years ago. Residents currently recycle approximately 29 percent of the waste generated in the home.

County residents have been also been successful in reducing the amount of waste sent to our landfills. In FY 2006/07, per capita waste disposal was reduced by two percent over the same period in FY 2005/2006, which represents an eight percent per capita reduction from the FY 1998/99 baseline year.

Why is waste reduction and recycling still important to our community? Although we still have more than 20 years of landfill capacity remaining in our immediate area, it is not infinite capacity. Plastics continue to be made from fossil fuels, and there is not an infinite supply of oil. The recycling of paper and cardboard remains a way of reducing the amount of virgin forest needed to supply our fiber needs. Recycling brings jobs to our communities and the recycling of materials such as metals and cardboard is economically profitable. There are markets for recyclable materials, both foreign and domestic. The business community has also expanded greatly to capture more recyclable materials such as metals, construction and demolition materials, paper and cardboard, plastics, glass, used oil and many more materials.

Over the past 20 years, our efforts to reduce, reuse and recycle have expanded with much success. We recognize the benefits to waste minimization and recycling and the effects that the management of solid waste has on other environmental media such as air and water. Mecklenburg County has changed the way that it manages its waste over the last 20 years and remains committed to the hierarchy established by the Environmental Protection Agency of reducing waste at its source, recycling and composting, and disposing of waste in properly designed, constructed and managed landfills.

Reduce, Reuse

If waste is not created in the first place, then it does not have to be managed by any system, such as landfilling or recycling. Can you produce less waste? The answer is yes. Well you make ask how or why you should have to. The answer lies in



responsibility to the environment, to the employer, to the person buying the goods and services at your home, to yourself. The Environmental Protection Agency estimates in 2006, U.S. residents, businesses, and institutions produced more than 251 million tons of MSW, which is approximately 4.6 pounds of waste per person per day. In 1987, the County did not have programs aimed at teaching the public to reduce the amount of waste generated. We now work with businesses to reduce waste, find alternatives to disposals, and find avenues for reuse in local and state programs. Programs for residents include: Don't Dispose - Donate It, Food Waste Diversion, Envirosopping, Junk Mail Reduction, Household Hazardous Waste - Toxicity Reduction, Holiday Waste Reduction Campaign, and the PLANT-Piedmont Landscape and Naturescape Training and placing donation units at all of our staffed recycling centers.

Reduce, Reuse, Recycle at home

Twenty years ago, only one curbside recycling program existed in the United States that collected several materials at the curb. By 2006, about 8,660 curbside programs had sprouted up across the nation. Mecklenburg County residents can recycle their materials at the curb, using their red, green or blue bins provided by local municipalities. The curbside recycling program is also augmented by a network of recycling drop-off centers, located throughout the county. Items accepted in the curbside programs include No. 1 and No. 2 plastic

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bottles, newspaper, glass, spiral paper cans, junk mail, aluminum cans, mixed paper, gift wrap and cardboard. Why is recycling important in the management of solid waste. Well it's because residential waste represents approximately 24 percent of the total solid waste in the County, and can generally be thought of as the waste produced from the home. In FY 2006/07, Mecklenburg County residents increased their recycling with a total 149,708 tons of material recycled through residential programs. Approximately 72 percent of the materials recycled were fiber and the remaining 28 percent of the materials were commingled glass, plastic and metal materials. Of this total, yard waste contributed 80,504 tons, while curbside and other materials made up the rest.

As our society becomes more dependent upon disposable items, packaging continues to arrive in our curbside bins. Many of you have asked for larger containers for recycling. The municipalities are currently studying various options for collecting recyclables to increase the recovery of materials at the curb. The municipalities are also increasing their educational efforts to residents. As our nation becomes "greener," residents are being encouraged from many sources to produce less and pollute less.

Reduce, Reuse, Recycle at County Drop-off Centers

When the recycling bin is full, there is another option for recycling in Mecklenburg County. The County provides four staffed recycling drop-off centers and 35 unstaffed recycling drop-off centers for the convenient use of residents.

Since 1984, the County has been growing this network of recycling centers.

In FY 2006/07, there were 2062 tons of materials recycled through the centers. The Full-Service Recycling Drop-Off Centers and accept materials such as paper, cardboard, beverage containers, computers, household hazardous waste, computers, yard waste, appliances and scrap metal. Goodwill Donation Centers and cooking grease recycling services are also located at these sites. The Self-Service Recycling Drop-Off Centers and accept fiber, aluminum (metal), glass and plastic (#1 and #2) containers. These centers are visited by both residents and businesses.

As previously noted, there are a variety of items that residents may recycle at the Full-Service Recycling Centers. Residents may recycle household hazardous waste, such as paints, batteries and anti-freeze at the Full-Service Drop-Off Centers.

Approximately 392 tons of household hazardous waste material was collected and





properly recycled or disposed of in FY2006/07. Residents may also recycle computers, computer related materials, and other electronics at the Full-Service Drop-Off Centers. In FY2006/07, 317 tons of electronics was recycled through this program.

If you have ever wondered what happens to refrigerators or dishwashers placed at the curb or taken to recycling centers. Mecklenburg County provided for the recycling of 3,400 tons of appliances and scrap metal in FY 2006/07. These materials are also collected curbside and taken to the County's Metal and Tire Recovery Facility. Business customers generally utilize the County's Metal and Tire Recovery Facility.

Scrap Tires

For many years, discarded tires were left in abandoned fields or along roadsides. The 1987 State of the Environment Report speaks to the issue of illegal dumping within the county. Many measures have been taken over the last twenty years to remove the amount of waste illegally discarded and manage scrap tires more responsibly. In FY2006/07, the County provided for the management of approximately 14,826 tons. Two options are available for handling scrap tires. Residents may take tires directly to the Full Service Drop-Off Centers and the County's Metal and Tire Recovery Facility. Locations for these facilities can be found on www.wipeoutwaste.com.

Another option for proper tire disposal is through a Rebate Program that is provided to tire retailers to reimburse their cost to discard the tires. Under this Rebate Program the scrap tires are taken to private processors/disposers permitted by the

state. Tires that are collected through these programs are recycled into a variety of applications including road building projects as paving material, use in septic tank drain fields, and conversion to Tire Derived Fuel.

Reduce, Reuse, Recycle on the Job

In 2006, 73 percent of County residents surveyed by the Urban Institute of the University of North Carolina at Charlotte indicated that they recycled at work. Forty-two percent of them were aware of the ordinance requiring the separation of paper and cardboard for the purpose of recycling. These numbers are quite impressive and demonstrate awareness of mandatory requirements for commercial recycling. In spite of the obtained awareness, commercial waste disposal increased in FY 2007 to 787,958. After many years of consecutive reduction, a single disposal event may have accounted for a large increase in disposal from the commercial sector.

The strategy for reducing the amount of commercial waste going into the landfill includes a law, enforcement and education. The ordinance, the *Mecklenburg County Ordinance To Require The Source Separation Of Designated Materials From The Municipal Solid Waste Stream For The Purpose Of Participation In A Recycling Program*, requires any business that contracts for 16 cubic yards or greater of trash collection per week to keep office paper and corrugated cardboard separate from other trash. The ordinance was adopted by Mecklenburg County, the City of Charlotte, and the towns of Cornelius, Davidson, Huntersville, Mint Hill and

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Pineville and became effective January 1, 2002. The ordinance continues to be enforced to business that fall within its threshold.

The County continues to support legislation enacted by the North Carolina Legislature. Two new laws that will serve to further reduce the amount of waste landfilled from the commercial sector are SL 2005-348 and SL 2005-362. SL 2005-348 requires the Alcoholic and Beverage Control Commission to develop a recycling plan for all holders of beer, wine and mixed beverage containers sold at retail on the premises. This act became effective on January 1, 2008. The County is currently working to educate permit holders on the collection and processing of recyclables in partnership with the ABC Commission.

SL 2005-362 prohibits the disposal of motor vehicle oil filters, rigid plastic containers, wooden pallets and oyster shells from landfills. The law becomes effective October 1, 2009. In response to this law, the County is studying the generation and disposal infrastructure of wood waste and commercial municipal solid waste. It is also studying the generation and disposal practices of small businesses in Mecklenburg County.

Mecklenburg County Government continues to lead by example in the commercial recycling sector, with its own internal recycling program. In FY2007, there was 16,916 tons of waste recovered from the County's waste stream. Our goal is to recover over 33,000 tons by FY2020. Efforts are underway to expand the number of materials recycled to include beverage containers, as well as other materials such as paper, cardboard, computers and many other products. This program also includes all County facilities and the Charlotte Mecklenburg Schools, Central Piedmont Community College, and the City of Charlotte.

Reduce, Reuse, Recycle on the Job Site

Although recent trends may indicate the slowing of the local economy and the building boom in Mecklenburg County, the County continues to experience growth in residential commercial building and the disposal of building materials. In FY 2006/07, 377,299 tons of C&D waste was landfilled in the County, a one-percent increase from the previous year and represents 25 percent of the overall waste stream.

Mecklenburg County continues to provide outreach and education to industry professionals. Opportunities for recycling are also being spurred by LEED (The Leadership in Energy and

Environmental Design) Green Building Rating System. This system encourages global adoption of sustainable green building and development practices through the creation and use of universally understood and implementable tools and performance standards.

An environmentally sustainable demolition project The Charlotte Coliseum demolition



On June 3, 2007, the Coliseum's final performance wowed its spectators and fulfilled expectations of its fans. On this day, National Demolition Association Member, CST Environmental, Inc., hosted the final performance — the implosion of the largest basketball arena built. The \$52 million, 465,000 square-foot facility served as a spectacular arena in the world of sports, and offered a spectacular opportunity to recover a portion of this investment by recycling of materials during its demolition. CST Environmental successfully recovered over 70,000 tons of material including masonry brick, concrete, ferrous and non-ferrous metals. A part of the coliseum will remain on the site, as the brick and masonry will be used as fill for the City Park development project. The 18,000 tons of asphalt from the parking lots will be harvested and used as material for The Loop at City Park, the 3-mile trail system. Items such as the 24,000 seats, basketball court and other miscellaneous items were sold or donated by Pop and Land Enterprises to local sports organizations. More than 90 percent of the material was recycled, exceeding the industry recycling standard of 30 percent.

There has been an increased interest by the private sector to provide opportunities for recycling of construction and demolition materials. The private sector remains involved in recycling large quantities of concrete and asphalt. Markets remain stable and lucrative for metals and corrugated cardboard. Demolition contractors are recycling such items as ceiling tiles, carpets and glass. Furnishings are also being diverted into the reuse sector.

The County continues to crush concrete, brick and block for reuse of the aggregate and the grinding of clean wood waste for sale as boiler fuel at its Foxhole Landfill. The Foxhole Landfill has recently received its ISO 14001 Environmental Standards Certification the first certification awarded to a municipal solid waste landfill in the southeastern portion of the United States. Certification under ISO 14001 is a voluntary activity designed to improve the environmental performance of an organization by developing, implementing, and regularly auditing an EMS that sets goals, institutes policies and procedures, and monitors performance. This achievement was consistent with the direction provided in the County's Environmental Leadership Policy.

Yardwaste from your business or from your home

Mecklenburg County residents are provided the opportunity to have their yardwaste turned into compost, mulch and soil products through a

comprehensive system of collection and processing of materials, education and promotion. Yard waste is waste resulting from landscaping and yard maintenance such as brush, grass, tree limbs, and similar vegetative material and land-clearing debris. Yard waste may come from residents or businesses. Residential yard waste is collected through curbside programs and taken to the County's composting facilities. Residents may also take these materials directly to the Full-Service Drop-Off Centers. Compost and mulch products are derived and sold from the yard waste received at these facilities. There was 80,504 tons of yard waste received by Mecklenburg County in FY 2006/07.

For the resident that would like to compost their own yard waste. The County offers a series of four-hour composting, PLANT-Piedmont Landscape and Naturescape Training, classes at sites throughout Mecklenburg County. This is a comprehensive yardwaste management program that includes, composting, erosion control, landscaping with native plants, grasscycling, vermicomposting and toxicity reduction. The novice composter may also become a Master Composter by participating in a 16-week Master Composter Training Course. Another very popular composting technique, worm composting, is popular amongst school age kids and practiced by many adults. The County also partners with a compost vendor to sale compost bins to residents of the county.



Litter - Don't Throw it Away!

*By Laurette Hall, Waste Reduction Program Manager
Mecklenburg County Solid Waste
and Brenda Ewadinger, North Carolina Keep America Beautiful Coordinator*

Based on the information available at the time of the 1987 SOER, it is difficult to assess if the County were more or less littered at that time, or if litter has increased over the last twenty years. If asked, many residents may describe how Mecklenburg County used to be a lot cleaner than it is now. While that claim is anecdotal, what we do know that is the population has increased over that period, and it can be surmised that the population increase has had a negative effect on the cleanliness of our community.

In 2001, recognizing a change in the perceived cleanliness of our community, Mecklenburg County launched its litter prevention program. The program addresses cleanup, enforcement, prevention and legislation. This program existed in addition to programs of cleanup and education being carried out by municipalities within the county.

The Litter Index

The Keep America Beautiful Litter Index is a measurement tool that allows a visual assessment of the types of litter present in a community. Assessors rank the amount of litter that can be visually observed using the following scale: 1=No Litter; 2=Slightly Littered; 3=Littered; and 4=Extremely Littered. The data obtained through this assessment tool can be beneficial in determining the types of programs a community needs, and the

tools that are effective or ineffective in changing attitudes and behavior. The Mecklenburg County index is compiled by the Keep Mecklenburg Beautiful program and the City of Charlotte's index is compiled by Keep Charlotte Beautiful.

Litter Index Scores		
Fiscal Year	Mecklenburg County	City of Charlotte
FY01	2.6	*
FY02	2.3	1.7
FY03	2.3	1.87
FY04	2.3	1.4
FY05	2.1	*
FY06	2.1	2.04
FY07	*	1.85

*Index scores not available

Promotion and Education

Keep Mecklenburg Beautiful and Keep Charlotte Beautiful are two Keep America Beautiful (KAB) affiliates in Mecklenburg County, Keep Mecklenburg Beautiful (KMB), founded in 2004, and Keep Charlotte Beautiful (KCB), founded in 1974. KAB prides itself in being a "national community improvement system" helping to define local waste reduction issues, beautification and litter prevention, and education on environmental media.

KMB, Mecklenburg County's KAB affiliate, participates in the Great American Cleanup from March 1 through May 31 of each year. The KMB program also promotes litter prevention through a diverse media plan, including print media, television, a promotional car, radio and billboard. Many presentations are given throughout the year, in conjunction with such events as Earth Day, America Recycles Day to schools, neighborhood associations, businesses and residents in order to heighten the awareness of litter as an issue. One of the most innovative educational campaigns occurred during the fall of 2007, in which nearly 500 tarps were distributed to local truck owners as a part of the North Carolina Department of Transportation's "Tarp Your Load" campaign.

KCB, one of the nation's oldest KAB affiliates has been in place for over twenty years. Their 20 member board operates within the City of Charlotte's Neighborhood Development department and is responsible for such events as



litter stings by the Charlotte-Mecklenburg Police Department, Adopt-A-Street, neighborhood recognition programs, anti-graffiti programs and also participation in the Great American Cleanup.

Public Involvement

How can local citizens become involved in litter reduction in our County? One way is to participate in an Adopt a Highway or Adopt a City Street program. In 1988, the North Carolina Department of Transportation's Office of Beautification recognized the need for citizenry involvement in road cleanups. They developed a program that could save taxpayers millions of dollars annually, while allowing them to become active in cleanup efforts. The Adopt a City Street was established in 1989 by the City of Charlotte as a program of the Keep Charlotte Beautiful organization.

Swat-a-Litter-Bug

A very popular citizen participation program, Swat-a Litterbug allows citizens to report acts of littering, whether deliberate or unintentional. An average of 100 citizen complaints is logged monthly. The Keep Mecklenburg Beautiful Swat-A-Litterbug Program is a way to educate people who litter from their vehicles. Call 704-432-1772 to report littering violations.

The owner of the reported vehicle is sent a letter from Keep Mecklenburg Beautiful explaining why litter is illegal, that it creates a safety issue, is extremely unsightly and is very expensive to clean up. During a time of severe drought, as is currently the case, the most common violation reported is the littering of lit cigarette butts from moving vehicles because of the potential fire implications.

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Enforcement and Legislation

Local Legislation-City of Charlotte Sign Ordinance Changes

Members of both the Keep Mecklenburg Beautiful and City of Charlotte staff recognized the need for changes regarding road side signage that would make it less attractive to place signs illegally and leave them in place, making them litter. Changes to the Sign Ordinance adopted in 2007 by the City of Charlotte City Council include increased monetary penalties for violations of the sign ordinance.

Local Policy: Uncovered Loads

Mecklenburg County is affecting the amount of litter produced from untarped loads by charging additional fees on these loads coming into its Foxhole Landfill. These loads are commercially generated, and 85 loads paid the additional payment of \$2,595 in FY06/07.

State Legislation-2007 NC General Assembly Litter Bills Introduced Summary

In 2007, the North Carolina General Assembly introduced a record number of bills aimed at litter prevention and education. Listed following are examples and status of some of the legislation introduced, but not yet ratified.

SB215

Litter Reduction Act of 2007

SB1202

Litter Violation Reported by Citizen.

SB1255

Cleanup of Abandoned Mobile Homes

HB1134

Cleanup of Abandoned Manufactured Homes.

HB1678

LRC Study Littering.

HB1867


Litter Prevention and Education Funds.

Cleanup

Litter cleanup is a community's responsibility. Sustainable cleanup efforts must be multi-tiered. The North Carolina Department of Transportation, City of Charlotte and towns, and Mecklenburg County take the lead responsibility for our community's roadways and appearance. Prevention and education are also a very important element of any cleanup effort.

In Mecklenburg County, cleanup is addressed from a community approach from volunteers to inmate labor to contracted cleanup services. An example of such efforts is the Great American Cleanup, a flagship program for the Keep America Beautiful association eliciting hundreds of miles of volunteer cleanup with thousands of hours of volunteer time.





Hazardous Waste in Mecklenburg County

*By Mike Bogart, Environmental Specialist
Mecklenburg County Solid Waste*

For 14 years, throughout the late 80s and 90s, Mecklenburg County industries had the dubious distinction of generating more hazardous wastes than those in any other county within North Carolina. However, this trend has changed drastically since the beginning of the new millennium. The changing face of industry within Mecklenburg County, public awareness, along with enforcement and continuing education of county residents by the Land Use and Environmental Services Agency (LUESA) personnel, are continuing to make a significant impact in the total amount of hazardous wastes generated and handled within Mecklenburg County as a whole.

In 1995, our County led the state in hazardous waste generation with approximately 9,900 tons of hazardous waste generation, which accounted for almost 20 percent of the total amount of hazardous waste generated in North Carolina. According to the most recent data available, for fiscal year 2005, as provided by the United States Environmental Protection Agency (USEPA), Mecklenburg County industries produced approximately 12,500 tons of hazardous wastes in 2005. Though this number is a significant total increase over the 1995 total, it is equal to approximately 3.3 percent of the total amount of hazardous waste generated in the state

during 2005. While it is a slight increase over the 12,385 tons produced in 2003, this two-year period's projected increase in Mecklenburg County's population of approximately 50,000 new residents easily accounts for the increased hazardous waste production within the county. There was a spike of approximately 112,000 tons of production seen in Mecklenburg County in fiscal year 2001. This high level of hazardous waste production in 2001 was attributed to the closure and inventory disposal reporting requirements that were placed on several large chemical corporations that either moved their operations from Mecklenburg County, or closed down operations outright during that reporting period. Those activities caused a one time disposal of material into the waste stream.

Last year the Mecklenburg County Land Use and Environmental Services Agency's Emergency Response Team responded to relatively few incidents that had the potential to release hazardous wastes into the environment. Accidental spills and illegal dumping are the most publicized way in which hazardous wastes are released into the environment. However, hazardous wastes are also introduced into the environment unknowingly by the improper use or disposal of household

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hazardous wastes such as cleaning solvents detergents, petroleum byproducts and acids.

A waste may be considered to be hazardous if it is ignitable, corrosive, or reactive. A waste may also be considered hazardous if it contains certain amounts of toxic chemicals. In addition to these characteristic wastes, USEPA has also developed a list of over 500 specific hazardous wastes referred to as listed wastes. Hazardous wastes may be solid, semi-solid or liquid. The hazard to human health or the environment caused by exposure to these substances can be felt immediately or over an extended period of exposure depending on the substance.

In 1978, the nation as a whole became aware of the threat of hazardous wastes when leaking drums of hazardous wastes were found buried throughout neighborhoods in the Love Canal housing development in Niagara, New York. Just two years prior to this discovery, Congress had passed the first law regulating hazardous waste generation, management and disposal. Since that time, there have been numerous news specials about communities across the nation, which have been contaminated by hazardous wastes. Many of these wastes have been found to cause cancer, birth defects and a variety of neurological disorders. Because of the seriousness of the threat posed by these chemicals, lawmakers have passed a variety of legislation in an attempt to prevent further contamination of the environmental and exposure of the public.

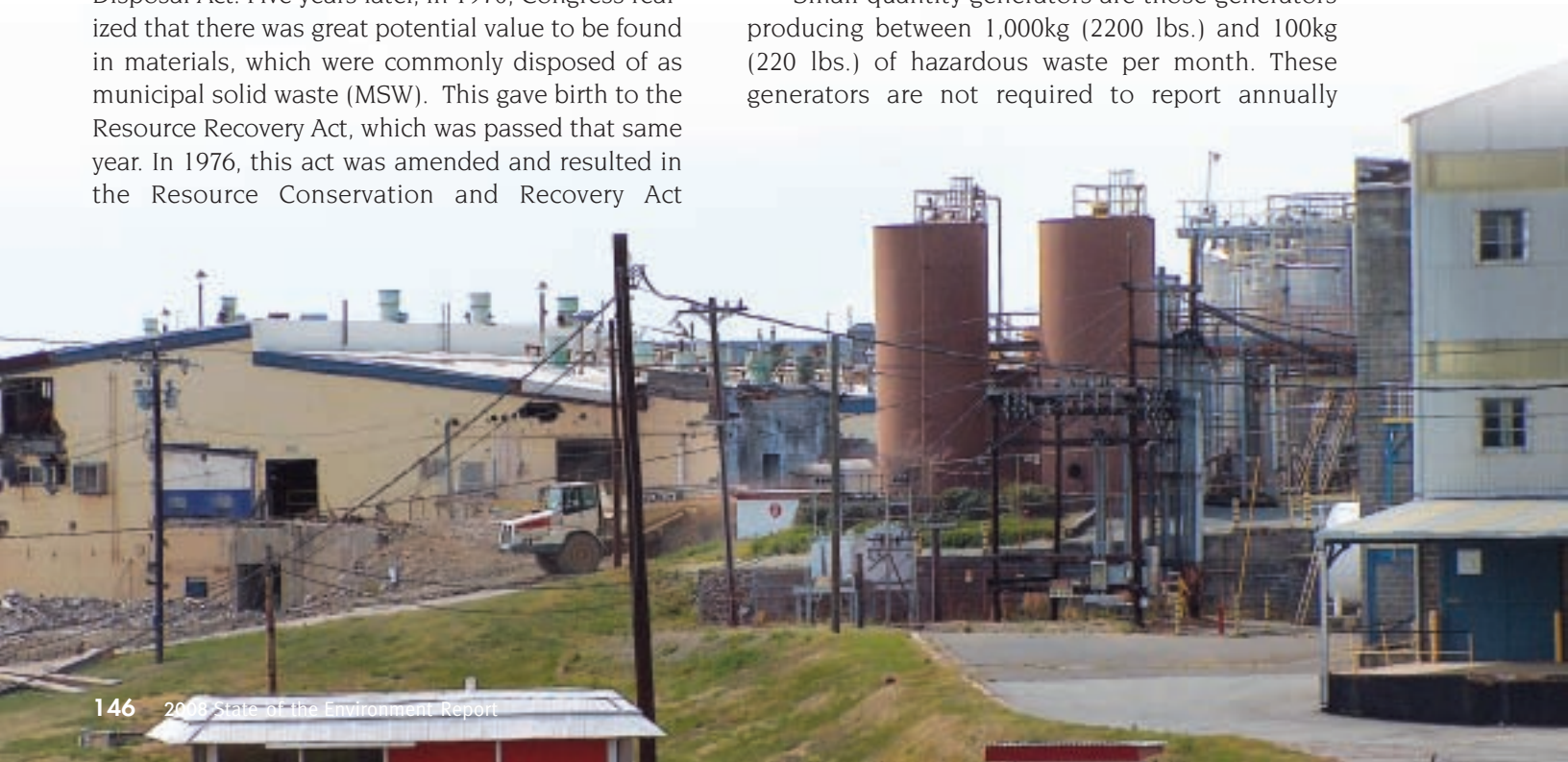
In 1965, Congress passed the Solid Waste Disposal Act. Five years later, in 1970, Congress realized that there was great potential value to be found in materials, which were commonly disposed of as municipal solid waste (MSW). This gave birth to the Resource Recovery Act, which was passed that same year. In 1976, this act was amended and resulted in the Resource Conservation and Recovery Act

(RCRA). This series of acts placed the U.S. government firmly in the arena of waste management, and also gave the federal government the ability to regulate solid waste within the United States. Congress gave the USEPA the authority and responsibility to act as the regulating agency for these acts.

For the purposes of the RCRA, household hazardous wastes and municipal solid wastes are excluded from this definition. The objective of this definition was to qualify hazardous waste as primarily a product of industry. Given the sampling of people who generate hazardous wastes, it becomes clear why RCRA defines hazardous waste as product primarily created by industry. RCRA categorizes for regulation the industries that generate, transport, store, dispose of, or handle hazardous wastes as part of their business enterprises. Generators are classified as either large quantity generators, small quantity generators or conditionally exempt small quantity generators.

Large quantity generators are those generators producing more than 1,000kg (2,200 lbs.) of hazardous waste per month or 1kg of acutely hazardous waste per month. Because these generators are responsible for the lions share of the total amount of waste generated they are most regulated. Large quantity generators are required to track and report annually the amounts of wastes generated. Large quantity generators may store their wastes on site for up to 90 days from when the accumulation began. There are currently 44 large quantity generators in Mecklenburg County (there were 46 in 2003).

Small quantity generators are those generators producing between 1,000kg (2200 lbs.) and 100kg (220 lbs.) of hazardous waste per month. These generators are not required to report annually



and may store their wastes on site for up to 180 days from when the accumulation began. There are currently 246 small quantity generators in Mecklenburg County (there were 226 in 2003).

Conditionally exempt generators are those generators that produce less than 100kg (220 lbs.) of hazardous waste per month. Because conditionally exempt small quantity generators typically generate very low quantities of waste and may do so sporadically, small quantity generators may store wastes on site for up to 270 days from when the accumulation began. There are 1,045 conditionally exempt generators in Mecklenburg County (there were 944 in 2003).

Any facility used for the treatment, storage and/or the ultimate disposal of hazardous wastes must be registered as a Treatment, Storage or Disposal Facility (TSD). There are currently 15 TSD facilities in Mecklenburg County.

Hazardous Waste Transporters are not regulated by the RCRA, but are regulated by the Hazardous Waste Transportation Act and by the Emergency Preparedness and Community Right to Know Act. There are no firm numbers on exactly how much hazardous waste material is transported through Mecklenburg County. There are 14 registered hazardous waste transporters in Mecklenburg County.

Significant strides in reducing the amount of hazardous waste generated in Mecklenburg County were made early on. While the production rates of hazardous materials are slowly on the rise after initial reductions, there have been significant relative reductions as noted. It's too soon to state that the relative production reductions measured are permanent, but there continues to be a decrease across the board in the number of large quantity generators as industry has begun to switch to suitable non-hazardous process chemicals and implement process controls to reduce the volume of waste generated.

Contaminated Sites

The regulation of all handlers and generators of hazardous wastes becomes important when ensuring that these people show due care and caution while handling and disposal of these wastes. These are guidelines and regulations that ensure that these wastes are properly transported, stored and handled. These regulations are in place to protect both the environment and the human population from being unnecessarily exposed to hazardous wastes. However, accidental releases and spills do occur and the result becomes land contaminated with hazardous wastes. When accidental releases and spills occurred

prior to the acts passed by Congress, the contamination was not always properly cleaned up. This led to the creation of many contaminated sites across the country, including sites throughout North Carolina and Mecklenburg County. These sites are regulated by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which is commonly referred to as the "Superfund Act."

In 1987, the General Assembly of North Carolina passed legislation to create the Inactive Hazardous Sites Program to identify, correct and control properties within North Carolina, which had been contaminated by hazardous materials. This act reflects many of the aspects of the Superfund Act and was designed to work within the same framework. The USEPA and/or NCDENR assess the sites that are potentially contaminated, and prioritize them for investigation. When these sites are investigated, the extent of contamination is determined. The investigating agency then decides whether or not the site requires clean up based on the presence of contamination and the potential human or environmental impact any contamination present may have. Sites in need of clean up, as deemed by the USEPA, are placed on the National Priority List (NPL). Sites in need of clean up, as determined by the NCDENR, are placed on the State Priority List (SPL). In either case, these sites are attended to only as funds become available. There are two NPL sites and 49 SPL sites in Mecklenburg County.

When a spill or accidental release of hazardous material occurs in Mecklenburg County, emergency personnel respond to the scene in accordance to the County's all hazards plan. The all hazards plan is a prepared emergency response protocol that satisfies the mandate in the Superfund Amendment and Reauthorization Act (SARA) that communities plan for potential responses to large-scale emergencies and disasters. Emergency responders included Police and Fire Department units with special hazardous materials units of the fire department, the Mecklenburg County Department of Environmental Protection and elements from either NCDENR or USEPA, are critical players in the all hazards plan.

Hazardous waste is a byproduct of modern society. It is incumbent upon industries and consumers to minimize the amounts of hazardous wastes they create. The proper management and reduction of hazardous materials and wastes can reduce the detrimental effects these materials have on the public health and the environment.

Further information available at: www.enr.state.nc.us and www.epa.gov

Radioactive Wastes and Mecklenburg County

*By Mike Bogart, Environmental Specialist
Mecklenburg County Solid Waste*

Situated in northwestern Mecklenburg County is Duke Power McGuire Nuclear Powered Electrical Generating facility. This facility began operation in June 1981 under a permit that does not expire until June 2021. This facility is the only source of high-level radioactive waste in Mecklenburg County and also accounts for almost all of the regulated low-level radioactive waste generated in Mecklenburg County. The differences in the handling, storage and disposal requirements of these two types of radioactive wastes, with regards to each other, as well as non-radioactive wastes is important for the safety of those that handle the wastes as well as for the safety of the environment and residents of Mecklenburg County.

Radioactive material comes in many forms. It is naturally occurring and found around all of us every day. It is energy that travels in waves and in the form of high speed particles that have been emitted during a natural decay process (ionizing radiation). There are three types of ionizing radiation particles: alpha, beta and gamma. Protecting human beings and the environment from any type of radiation is composed of primarily two strategies; provide shield and create distance between the source of the radiation and the entity to be

protected. Each particle type has different characteristics that require differing protective measures to be taken.

Alpha particles are relatively large and slow-moving. While they are blocked by your skin, they can be harmful if ingested or inhaled; however they do not travel far from the source. Beta particles can penetrate clothing and skin thereby causing direct tissue and DNA damage leading to many illnesses, including cancers; these particles have higher energy and smaller size than alpha particles and therefore require more shielding and/or a greater separation in distance. Gamma rays are the last type of ionizing radiation and have the greatest penetrating and further ionizing properties; they can induce other materials to become radioactive. Handling materials that emit Gamma rays requires special shielding for protection to avoid the significant exposure hazards that they may pose and the greatest distance of separation. These different types of radioactive materials are utilized for a wide variety of beneficial usages such as medical diagnostic and treatment, food preparation and safety enhancement, energy production and many other everyday tasks that require electromagnetic energy.

All of these everyday uses, other than energy production, create very small to negligible amounts of low-level radioactive waste and account for only a fraction of one percent of the total amount of low-level waste generated. Most of these wastes are generated by medical and dental facilities and are easily disposed of after waiting for a minor amount of decay to occur on site. These wastes are then readily disposed of in the appropriate waste stream and handled safely with ease. All other low-level waste is generated at the nuclear powered electrical generating facility. In 2006 the Duke Power McGuire Plant created 6,382 cubic feet of low-level radioactive waste. This waste is composed of items such as protective clothing, mops, filters rags and just about any house keeping or protective items you can imagine that would not come in direct contact with the original power generating materials. The amount of waste generated on an annual basis at this facility fluctuates greatly. While in the past, much of this type of waste was stored of at the facility, it is currently being disposed of in Barnwell, S.C., at a licensed facility.

The only source of high-level radioactive wastes in Mecklenburg County is the Duke Power facility. It

is created from the material that powers the facility: the radioactive fuel rods are utilized to generate heat and create the stream that powers the electrical generating turbines. The high-level radioactive waste material is created when fuel rods in the assemblies need replacement and are removed. On removal, the waste rods being generated are currently being stored on site, as they are at all nuclear powered electrical generating facilities in the United States. While no exact numbers on the amount of storage capacity left at the site is available at this time, projections from the last reported numbers in 1998 put the available storage remaining at approximately 20 percent. Though this number seems small, that is still a large amount of storage available and should carry the facility forward many more years. Prior to utilizing the full storage capacity at this facility the new national repository for high-level nuclear wastes should be completed and operational. This facility is to be located at Yucca Mountain, NV. The U.S. Congress directed the Department of Energy, the Environmental Protection Agency and the National Academy of Sciences to work together in development of the site prior to its implementation as the

national repository. The site has been in development for almost 20 years at this time.

Further information available at: www.enr.state.nc.us and www.epa.gov

